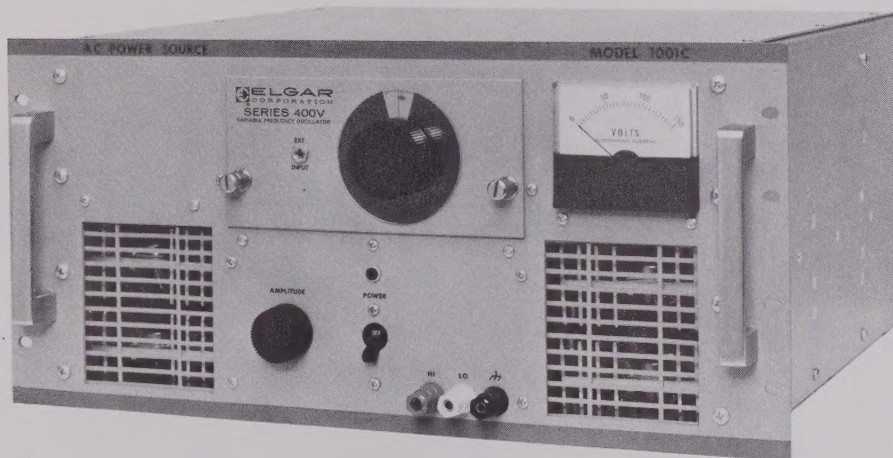


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C SERIES AC POWER SOURCES

WARRANTY

Elgar Corporation warrants each instrument it manufactures to be free from defects in material and workmanship. The corporation's obligation under this warranty is limited to servicing the instrument and replacing defective parts. This warranty is effective for one year after delivery of the instrument to the original purchaser. Defects caused by improper operating conditions, misuse, negligence, or the alteration or removal of the nameplate, will void the warranty. Elgar Corporation shall in no circumstance be liable for any direct or consequential loss or damage of any nature resulting from the malfunction of the instrument. This warranty is effective in lieu of any or all other obligations or liabilities on the part of Elgar Corporation, its agents, or representatives.

DO NOT RETURN THE UNIT FOR REPAIR WITHOUT AUTHORIZATION FROM ELGAR CORPORATION. Unauthorized returns found to be within specifications will result in a \$50.00 inspection fee, plus two-way freight charges.



ELGAR CORPORATION . . . THE BEST SOURCE OF POWER

8225 Mercury Court, San Diego, California 92111

Phone 714-565-1155, TWX 910-335-1246

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SECTION I DESCRIPTION

1-1. INTRODUCTION

1-2. This manual describes the Elgar Single Phase C Series AC Power Sources. The information it contains is intended for use by operators and trained technicians. It contains information regarding the installation, theory of operation and maintenance of the AC Power Source. Also included are parts lists and schematic diagrams to aid in maintaining the units at optimum performance.

1-3. GENERAL INFORMATION

1-4. The C Series AC Power Sources described in this manual provide AC power at precise frequencies for testing, motor operation, and frequency conversion. The basic power amplifier consists of two DC power supplies and a direct-coupled amplifier providing a direct output at the rear panel terminal board and at the front panel binding posts. Total available power is listed in Table 1-1. Power at less than full-rated output voltage is derated as shown in Figure 1-1. A curve of typical harmonic distortion is shown in Figure 1-2. Input power is 117 VAC, 47-63 Hz. The input power transformer may be jumpered for 234 VAC, 47-63 Hz operation.

1-5. The output power frequency is determined by a plug-in oscillator. The output frequency range is 15 Hz to 10 kHz. A variety of plug-in oscillators is available with frequency accuracies to .0001%.

1-6. The basic power source output is single-phase. Multi-phase power can be obtained, how-

ever, by stacking two or three power sources, all driven by the same multi-phase plug-in oscillator, using signal routing plug-ins for other phases.

1-7. PHYSICAL DESCRIPTION

1-8. The Elgar C Series AC Power Sources are contained in a rack-mountable enclosure. A meter for output voltage monitoring, a voltage amplitude control, a power circuit-breaker switch that applies line power to the unit, and a power-on indicator are located on the front panel. Cooling air is drawn through a front-panel grill and exhausted at the rear of the enclosure.

1-9. The enclosure contains four heatsink assemblies, which comprise a two-section power amplifier. A pre-amplifier board assembly provides amplification of the input signal from the plug-in oscillator. Output power is available directly at the rear panel terminal board and from the red and white binding posts on the front panel. (No output transformer is used in the C Series, therefore power is obtained directly from the power amplifier at the output terminals.)

1-10. PERFORMANCE SPECIFICATIONS

1-11. The performance specifications for the C Series AC Power Sources are listed in Table 1-1.

1-12. Instruments which have an optional output autotransformer installed are designated by a dash number suffix as shown in Table 1-2.

TABLE 1-1. PERFORMANCE SPECIFICATIONS

INPUT POWER			
Voltage	117VAC or 234VAC ±10% single phase. (Note: AC input is wired for 117VAC. Internal jumpers must be changed for 234VAC operation.)		
Phase	Single, 2 wire with ground.		
Current (max.)	Model 251C, 5A & 2½A, respectively Model 501C, 10A & 5A, respectively Model 1001C, 20A & 10A respectively		
Frequency	47Hz to 63Hz		
OUTPUT POWER			
Power Rating	<u>251C</u> 0-250VA	<u>501C</u> 0-500VA	<u>1001C</u> 0-1000VA
Power Factor	Unity to ±.7 at full VA rating	Unity to ±.7 at full VA rating	Unity to ±.7 at full VA rating
Voltage Range	0-125VAC	0-125VAC	0-125VAC
Current Range	0-2A RMS 0-4 amp peak	0-4A RMS 0-8 amp peak	0-8A RMS 0-16 amp peak
Frequency	15 Hz - 10 kHz at full rated power.	15 Hz - 10 kHz at full rated power.	15 Hz - 10 kHz at full rated power.
TOTAL HARMONIC DISTORTION			
Tested Distortion	0.5% max., 45 Hz to 5 kHz 2% max., 5 kHz to 10 kHz & 15 Hz to 45 Hz		
Output Noise	70 dB below full output voltage, with output grounded.		
LINE REGULATION	±0.25%, 117VAC or 234VAC ±10%, at full load		
LOAD REGULATION	±0.25%, no load to full load, 45 to 5 kHz; ±2% 5 kHz to 10 kHz & 15 Hz to 45 Hz.		
RESPONSE TIME	Less than 20 usec.		
OVERLOAD/SHORT CIRCUIT PROTECTION	Automatic current limiting (recovers immediately when overload removed).		
EFFICIENCY	Greater than 50% at full load and nominal input voltage.		
OPERATING TEMPERATURE RANGE	-20°C to +50°C		
NON OPERATING	-40°C to +85°C		
DIMENSIONS			
	<u>251C</u> 5¼"Hx19"Wx16"D	<u>501C</u> 5¼"Hx19"Wx16"D	<u>1001C</u> 8¾"Hx19"Wx17"D
WEIGHT	Approx. 34 lbs.	Approx. 46 lbs.	Approx. 76 lbs

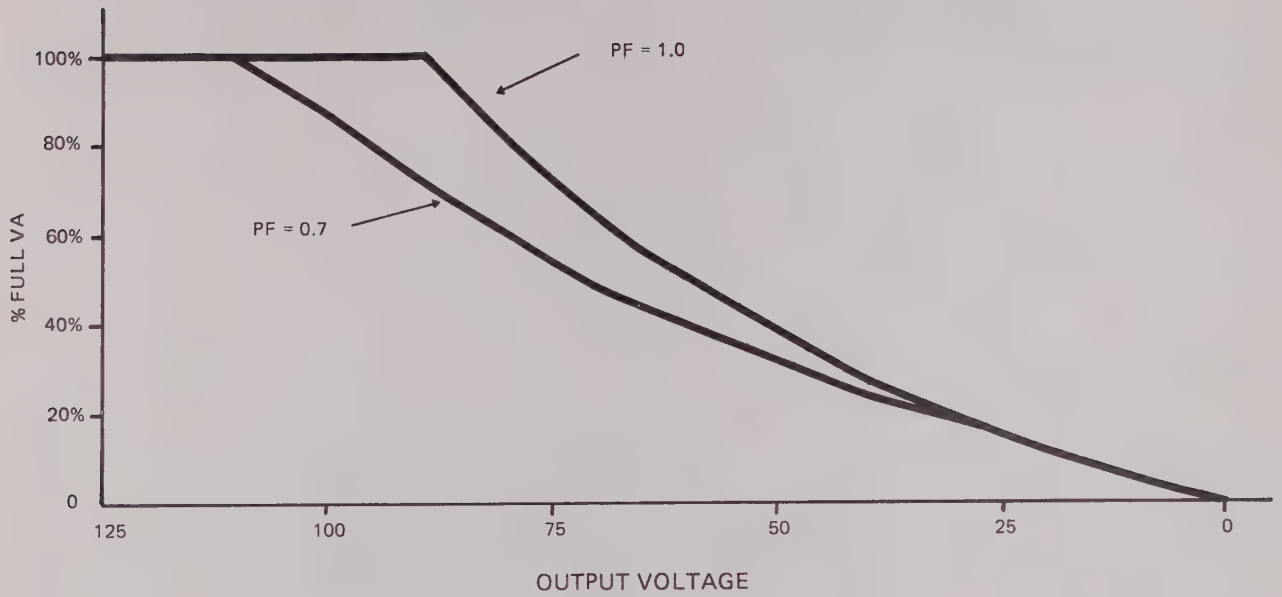


Figure 1-1. Derating Curve

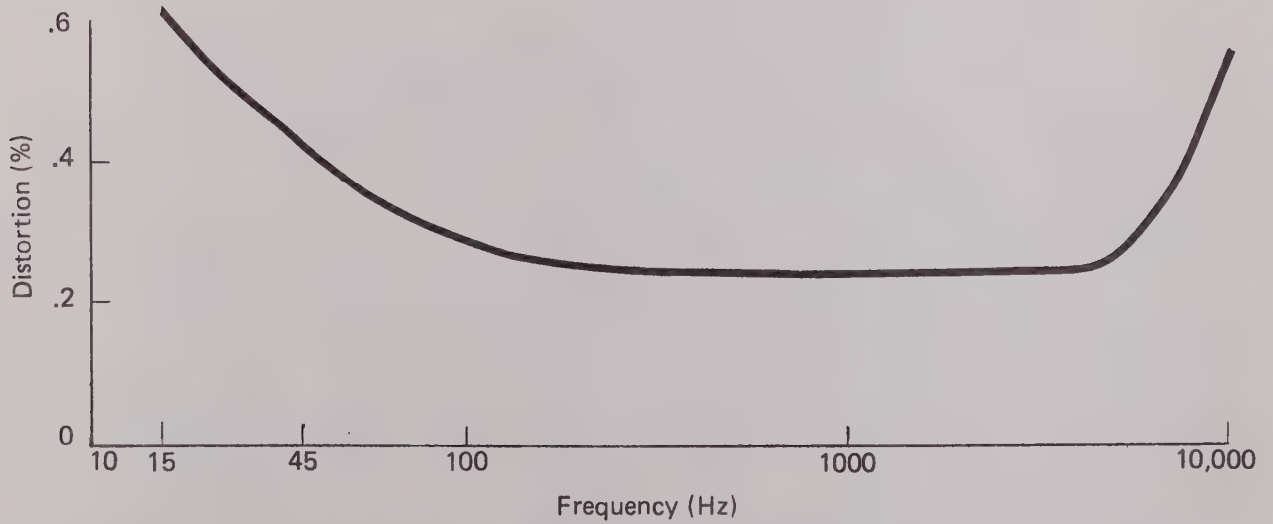


Figure 1-2. Harmonic Distortion

NOTE

Instruments with output autotransformers installed are not operable at output frequencies below 45 Hz.

1-13. In all cases, the total VA available from the instrument (VA from HI plus VA from tap) is equal to it's rating. Some autotransformers, however, have limited VA available at the tap connection.

TABLE 1-2. OPTIONAL AUTOTRANSFORMER MODEL DESIGNATIONS

MODEL	TAP VOLTAGE	VA AVAILABLE AT TAP	AUTOTRANSFORMER PART NUMBER
251C-101	0-26V	90	990-783-9X
251C-103	0-250V	250	990-784-9X
251C-104	0-72V	250	990-785-9X
501C-101	0-26V	180	990-720-9X
501C-103	0-250V	500	990-758-9X
501C-104	0-72V	500	990-786-9X
1001C-101	0-26V	360	990-787-9X
1001C-103	0-250V	1000	990-762-9X
1001C-104	0-72V	1000	990-788-9X

SECTION II INSTALLATION

2-1. INTRODUCTION

2-2. The Elgar Model C Series AC Power Sources have been calibrated and quality tested prior to shipment. The unit is therefore ready for installation and operation upon receipt. Instructions in this section must be followed to ensure proper inspection upon receipt of the unit and correct installation.

2-3. UNPACKING AND RECEIVING INSPECTION

2-4. The unit has been packed in accordance with industrial standards for safe shipment. Upon receipt of the unit, unpack and inspect the unit as follows:

1. Make a visual inspection of the shipping container before accepting the package from the carrier. If the shipping container is damaged, describe the damage on the carrier's receipt.
2. If there is no apparent damage to the shipping container, carefully unpack the unit and save the container and filler materials until preliminary inspection is completed.
3. Visually inspect the unit for evidence of external damage, such as chassis dents, scratches, or distortion.
4. Check front panel power circuit breaker switch and amplitude control for ease of operation.

5. Check that front panel meter is not damaged.

NOTE

If any physical damage is evident, file a claim for concealed damage with the carrier agent and save all shipping materials for inspection. Forward a report of damage to the Elgar Service Department, 8225 Mercury Court, San Diego, California 92111. Elgar will provide instructions for repair or replacement of the unit.

2-5. INSTALLATION

2-6. The Sources have been internally jumpered on the rear panel terminal strip for operation at 117VAC input power. Changing configuration from 117VAC to 234VAC is accomplished through internal jumpers. (Refer to schematic diagrams, Figures 7-1, 7-2, or 7-3.) Input power is connected through an AC line cord with a grounding plug for Model 251C and Model 501C, and through a rear panel barrier strip for Model 1001C.

2-7. Instruments are usable as bench mounted equipment, or rack mounted equipment. Threaded inserts are provided in the chassis sides to mount

a set of chassis slides manufactured by Zero Mfg. Co., part number CTN- 120.

1-8. The physical dimensions of the units are shown in Figure 2-1.

WARNING

Do not obstruct the air intake or outlet vents on the front and rear

panel of the unit. Any obstruction will reduce the effectiveness of cooling, thus resulting in overheating and possible damage to the unit.

2-9. Output power is available at connections on the rear panel terminal board and at connections on the front panel binding posts. (Refer to Figures 2-2 and 3-1.)

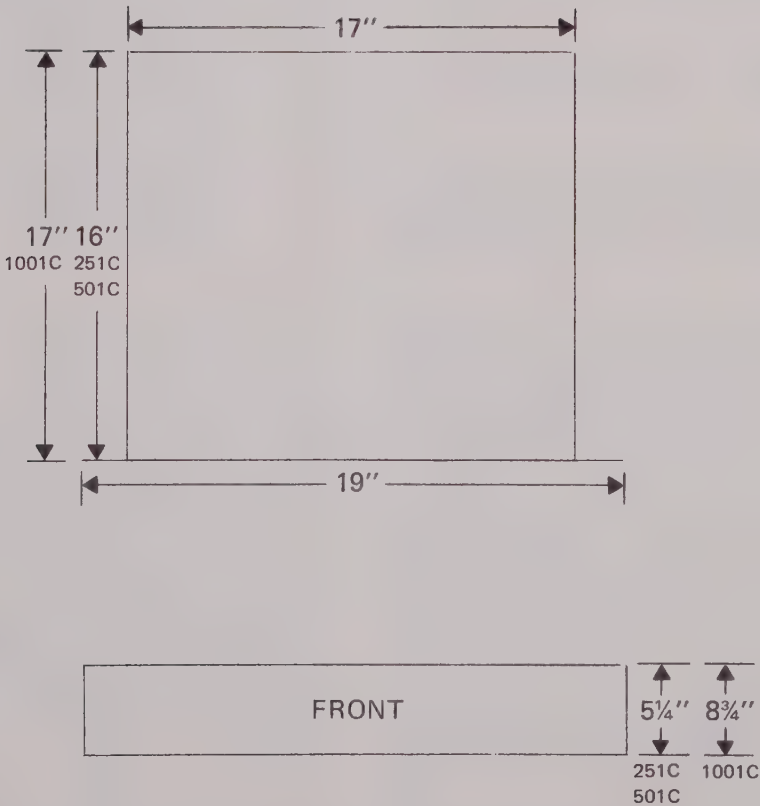
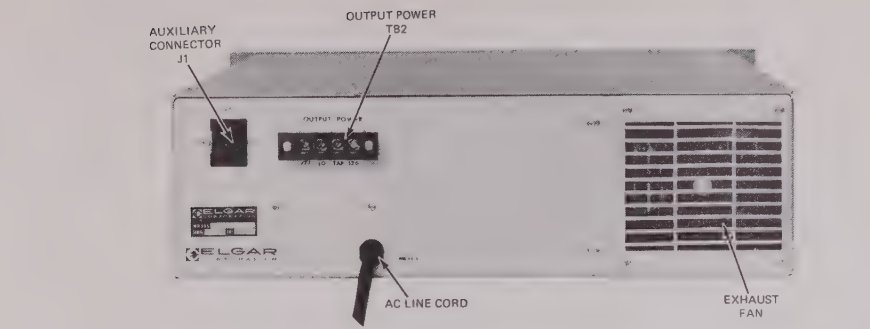
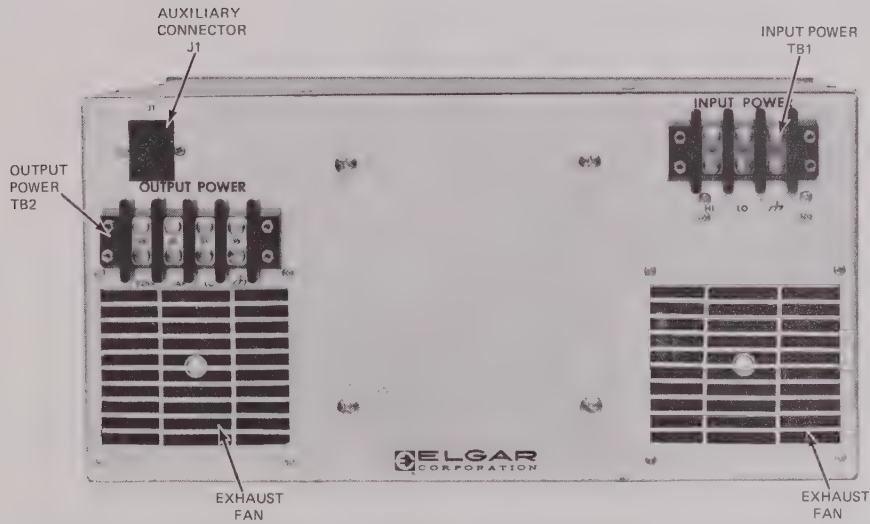


Figure 2-1. Physical Dimensions



Models 251C and 501C



Model 1001C

Figure 2-2. Rear Panel

SECTION III OPERATION

3-1. INTRODUCTION

3-2. This section describes the operation controls and indicators of the C Series AC Power Sources. (Refer to Figure 3-1.) Basic operating instructions are also included.

3-3. CONTROLS AND INDICATORS

3-4. The functions of the controls and indicators are as follows:

1. AC Power Circuit Breaker (CB1)
Applies AC input power to the unit.
2. AC Power On Lamp (DS1)
Lights when AC input power has been applied to the unit.
3. AMPLITUDE Control (R101)
Controls the input signal amplitude (from oscillator) to the amplifier.
4. AC Voltmeter (M1)
Monitors AC output voltage (0-150 VAC).

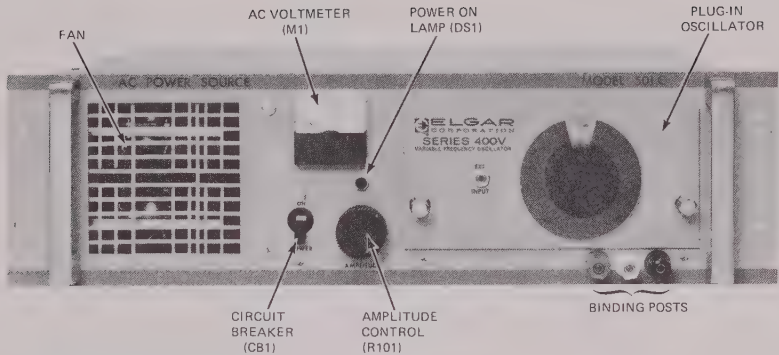
3-5. OPERATING PROCEDURE

3-6. Operation of the Sources is as follows:

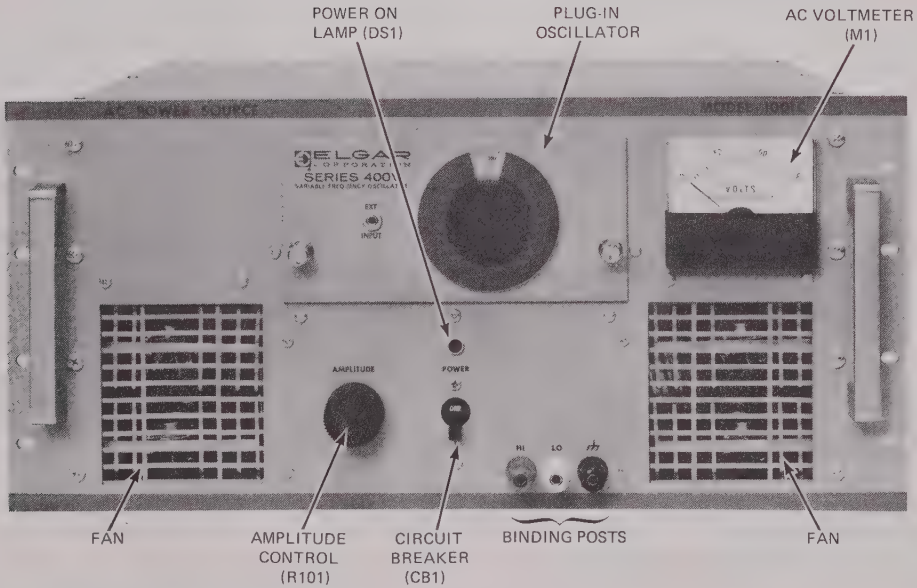
1. Insert the appropriate plug-in oscillator into the unit.
2. Connect the load to the appropriate output terminals on the rear panel. For bench mounted applications, the front panel binding posts may be used.
3. Connect the input power line cord, or barrier terminal posts, on the rear of the unit to an appropriate source of single phase power. (Refer to schematic diagrams, Figures 7-1, 7-2, or 7-3, for 117VAC or 234VAC input connections.)
4. Set the front panel circuit breaker switch to ON. The indicator lamp will light.
5. Adjust the front panel AMPLITUDE control for the desired output voltage as indicated on the front panel voltmeter.

NOTE

Certain Elgar plug-in oscillators do not require the use of the front panel AMPLITUDE control. Others are remotely programmed. Refer to the appropriate oscillator instruction manual.



Models 251C and 501C



Model 1001C

Figure 3-1. Controls and Indicators

SECTION IV THEORY OF OPERATION

4-1. INTRODUCTION

4-2. The Amplifier Boards in all single phase C Series Models operate the same. Differences in part numbers and some component connections will be evident. The description of operation that follows, however, is equally applicable to all models, even though the 501C is used for descriptive purposes. (See schematic diagrams, Figures 7-1, 7-2, and 7-3.)

4-3. CIRCUIT DESCRIPTION

4-4. An input signal of approximately 3 volts RMS is normally supplied by a plug-in oscillator, however, an external signal source may be used. For most Elgar plug-in oscillators, the input amplitude to the amplifier is controlled by the front panel AMPLITUDE CONTROL, R101.

4-5. This adjusted input signal is supplied to the amplifier board through pin 1 via terminal R of J2. The signal is applied to the first amplifier stage, Q111. This dual FET amplifier provides very high input impedance, unloading input resistor R115. This first amplifier stage is arranged for unity gain.

4-6. The output of amplifier Q111 is applied to the differential amplifier Q112. Emitter currents for Q112, as well as Q111, are supplied by a +6.2V source derived from the +200V line and regulated by CR101. The output of Q112 is applied through Q113 to the base of Q117. The output of Q117 is direct coupled to Q116. Q116 provides the total drive signal to the complementary pair of drivers, Q107 and Q118. Q101 acts

as an emitter follower from Q107, and Q123 acts as an emitter follower from Q118, thus sharing the supply voltage between the series connected power transistors.

4-7. Q101 and Q107 drive the two upper power amplifier assemblies through Q201 and Q301 respectively. Q118 and Q123 drive the two lower power amplifier assemblies through Q401 and Q501 respectively. These power amplifier assemblies are connected two in series, one such series connection for each half-wave of the drive signal.

4-8. The power amplifier consists of a group of power transistors mounted on 4 heatsink assemblies (251C-8, 501C-12, 1001C-28). The .68 ohm resistors ensure equal current sharing of the output transistors. The drive and output stages are operated from nominal $\pm 200\text{VDC}$ supplies. The thermal switch, TK301, turns drive signals off to the power amplifier in the event the power amplifier overheats from excessive load or restricted airflow through the wind tunnel.

4-9. The power amplifier is also protected from overload or short circuits on the output by current limit transistors Q106 and Q115. The current in the upper half of the power amplifier is sampled by R302, and applied to the base of Q106 through resistor R114. When the voltage at the base of Q106 reaches conduction threshold (approximately .6V) the drive signal is diverted from the base of Q107 thus preventing any further increase in output current. Simultaneously, the current in the lower half of the power amplifier is sampled by R3. This voltage is applied to the base of Q115 through resistor R123. When the

voltage at the base of Q115 reaches conduction threshold, the drive signal is diverted from the base of Q118 preventing any further increase in output current of the lower half of the power amplifier.

4-10. The output of the power amplifier is supplied to both the rear panel power output barrier strip and the front panel binding posts via stabilization network L1, R4, R5 and C5, which acts as a high frequency roll-off network.

4-11. The negative feedback path is from the

high output connection via pin 18 on the amplifier board to feedback network C107, R132, and finally to the input mixing point on Q111.

4-12. There are two power supplies in the unit. The $\pm 42\text{VDC}$ supply connects to J1 to supply power to the plug-in oscillator module. The $\pm 200\text{VDC}$ supply provides power to the amplifier board assembly and the heatsink assemblies. These supplies are filtered by C1, C2, C3, and C4. The bleeder resistors R1 and R2 are used across the $\pm 200\text{VDC}$ output only.

SECTION V MAINTENANCE

5-1. INTRODUCTION

5-2. This section contains procedures for preventive and corrective maintenance. Preventive maintenance consists of procedures for cleaning and inspecting the unit. Corrective maintenance includes checkout and troubleshooting.

WARNING

Disconnect AC input power whenever performing maintenance on the unit. Failure to comply can result in serious electrical shock to persons coming in contact with live voltages present at exposed terminals when unit is plugged into an outlet.

5-3. PREVENTIVE MAINTENANCE

5-4. Preventive maintenance comprises the cleaning and inspection of the unit. The unit should be cleaned and inspected at regular periodic intervals (every six months depending on operating conditions). The top and bottom panels of the unit are removable for access to components. To clean and inspect the unit, proceed as follows:

1. Inspect circuit board parts for evidence of overheating, such as burned or distorted resistors, capacitors, and charred insulation. Replace parts suspected of damage.
2. Inspect circuit board parts for evidence

of physical damage, such as broken or cracked capacitors and resistors, broken solder joints and discontinuities in circuit foil paths.

3. Inspect circuit board connectors for corrosion and obvious physical damage. Remove corrosion with clean, lint-free cloth dampened in trichlorethylene; replace circuit board assembly if damaged.
4. Inspect chassis and front panel mounted components for broken connections, burned insulation or damaged parts.
5. Inspect the heatsinks. Heatsinks may be inspected through the front panel grill. If dust and dirt have accumulated, an air jet should be directed through the front panel grill while the unit is operating. If this does not dislodge the dirt, the heatsinks must be removed to be cleaned.

NOTE

Elgar Corporation is not responsible for units returned for repair without proper Elgar authorization. Contact Elgar Corporation or its authorized representative to make return shipment of the unit. The unit should be returned to Elgar Service Department, 8225 Mercury Court, San Diego, California 92111.

5-5. CORRECTIVE MAINTENANCE

5-6. Corrective maintenance consists of check-out and troubleshooting of the unit. The check-out or operating procedures are given in Section III, Operation.

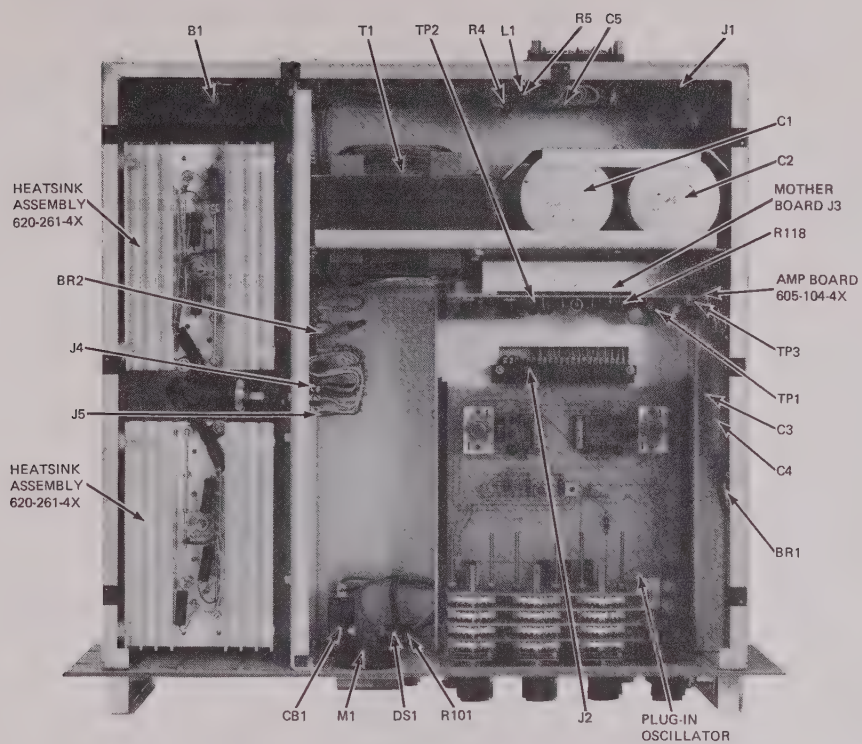
5-7. TROUBLESHOOTING

5-8. If the circuit breaker CB1 trips at no load, a fault in either the power transistors or power rectifiers is indicated. Unplug the heatsink assemblies and try resetting the circuit breaker. If the circuit breaker stops tripping, look for a shorted power transistor in the heatsinks. (Power transistors can be tested with an ohmmeter.) If the

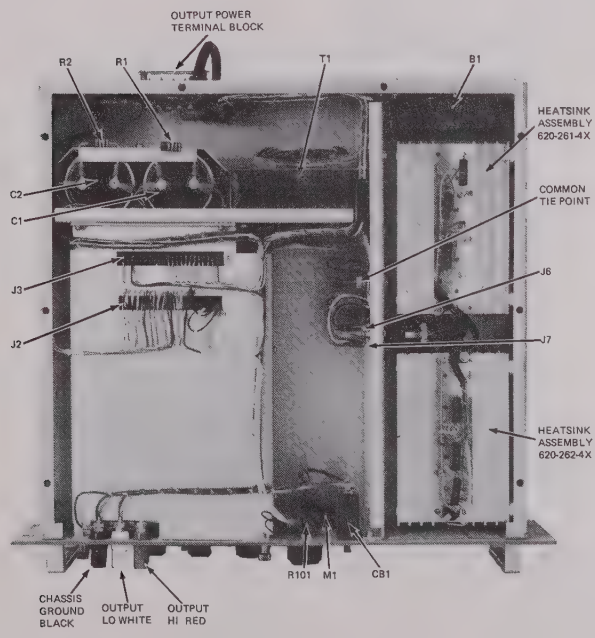
circuit breaker still trips, look for a shorted rectifier bridge. If all diodes and filter capacitors are good, a fault in the power transformer or wiring harness is indicated.

5-9. Output distortion may be caused by overloading. Check the load current waveform with an oscilloscope since some high crest factor loads may draw considerably more peak current than is indicated by a load ammeter.

5-10. If overheating causes thermostat TK301 to close, the output voltage will fall to zero. Overheating may be caused by restricted airflow or excessive environmental temperature (greater than 50°C).

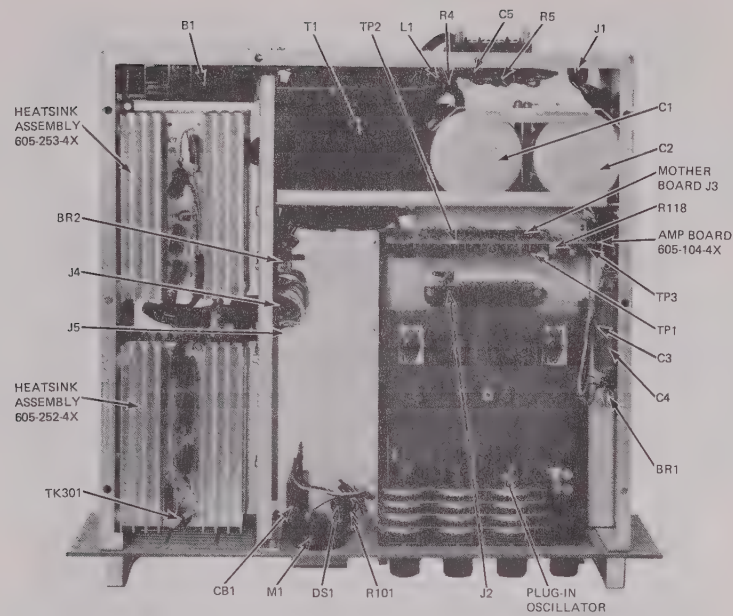


TOP VIEW

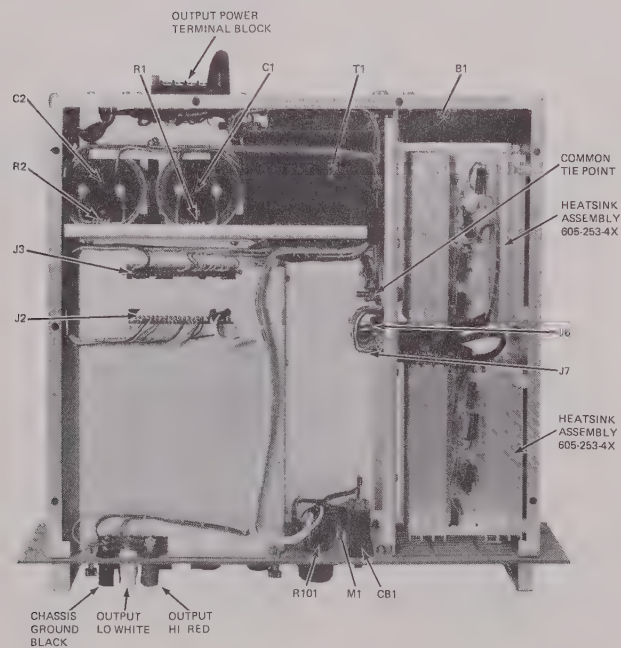


BOTTOM VIEW

Figure 5-1. Inside View, Model 251C

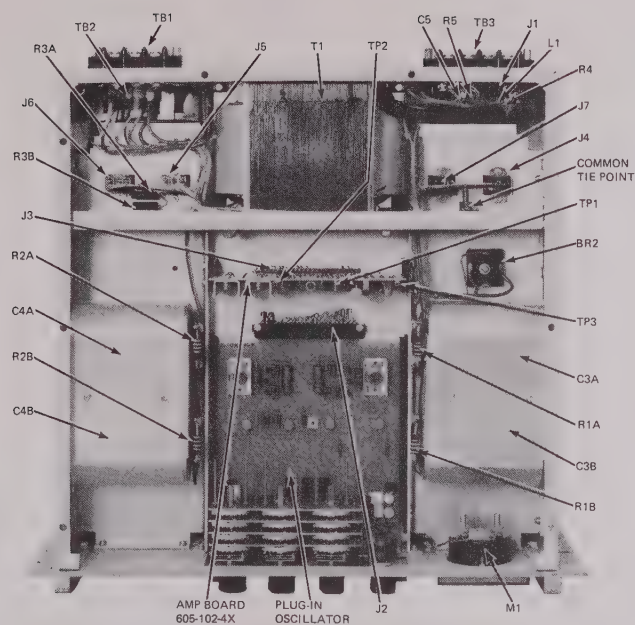


TOP VIEW

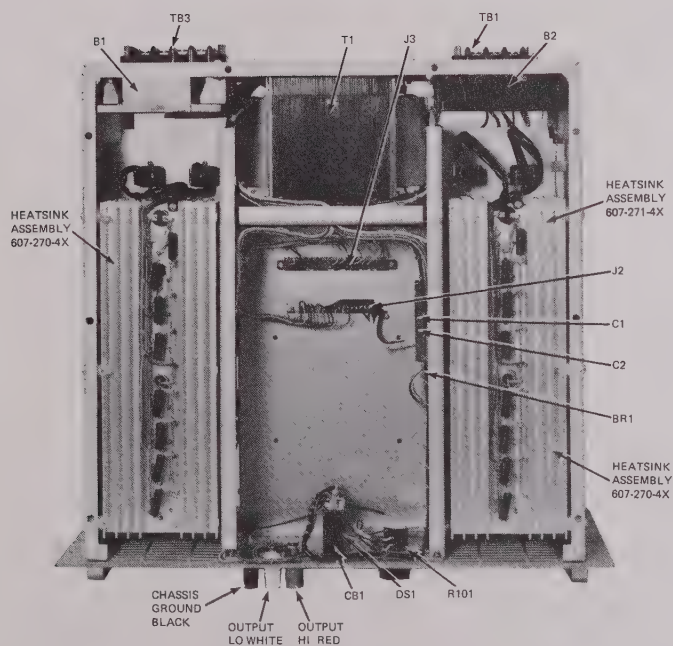


BOTTOM VIEW

Figure 5-2. Inside View, Model 501C



TOP VIEW



BOTTOM VIEW

Figure 5-3. Inside View, Model 1001C

SECTION VI

PARTS LIST

6-1. INTRODUCTION

6-2. This section contains a list of all parts necessary for factory authorized repair of the C Series AC Power Sources. Location of parts and assemblies is shown on illustrations in Section VII. Parts are located on the illustrations and then correlated on the parts list by reference designators.

6-3. SPARE PARTS

6-4. When ordering spare parts, specify part name, part number, manufacturer, component value and rating, and the Elgar part number. Where no specific manufacturer or part number is given, the replacement part should conform to value, rating, and tolerance as listed. If complete assemblies are desired, order assembly from Elgar Corporation, 8225 Mercury Court, San Diego, California 92111. Specify assembly number, unit series number and unit number.

MODEL 251C CHASSIS ASSEMBLY

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
B1		Fan		Pamotor	4500	853-450-01
BR1		Diode Bridge		ITT	1N4004	845-400-4X
BR2		Bridge		Motorola	MDA3506	847-990-6X
C1,2	1,100 μ F	Capacitor	50V	Sprague	39D118G050HP4	824-118-72
C3,4	1,500 μ F	Capacitor	300V	G.E.	86F221M	826-221-92
C5	.02	Capacitor	600V	Sprague	6PS-S20	822-203-06
CB1		Circuit Breaker	10A	Airpax	UPG1-1-6-1-103	852-153-51
DS1		Lamp		Eldema	BG02-RCS-AIC-68K	854-68K-22
J1		Connector	12 pin	Cinch-Jones	S312AB	856-312-S1
J2		Connector	22 pin	Winchester	8BDJ22S	856-BDJ-S2
L1	4.9 μ H	Choke		Miller	5219	851-521-9X
M1		AC Voltmeter	0-150VAC	Jewell	MS1T	857-150-1T
R1,2	33K	Resistor	2W, 5%	Speer	RC42GF333J	804-333-05
R3A,B	.68	Resistor	5W, 1%	Dale	CW5-68	807-R68-05
R4	10 ohm	Resistor	2W, 5%	Speer	RC42GF100J	804-100-05
R5	22 ohm	Resistor	2W, 5%	Speer	RC42GF220J	804-220-05
R101	10K	Potentiometer			534-9561-10	819-103-53
T1		Transformer		Elgar		990-775-9X
T2 (optional)		Auto Xfmr		Elgar		990-758-9X
		H.S. Assy. w/TK		Elgar		620-262-4X
		H.S. Assy.		Elgar		620-261-4X
		Amp. Bd. Assy.		Elgar		605-104-4X
Chassis Rack-Mounting Slides		(Not normally supplied)		Zero	CTN-120	105-120-TN

MODEL 501C CHASSIS ASSEMBLY

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
B1		FAn		Pamotor	4500	853-450-01
BR1		Diode Bridge		ITT	1N4004	845-400-4X
BR2		Bridge		Motorola	MDA3506	847-990-6X
C1,2	1,100 uF	Capacitor	50V	Sprague	39D118G050HP4	824-118-72
C3,4	2,200 uF	Capacitor	300V	G.E.	86F222M	826-222-92
C5	.02	Capacitor	600V	Sprague	6PS-S20	822-203-06
CB1		Circuit Breaker	15A, 250V	Airpax	UPG1-1-6-1-153	852-153-51
DS1		Lamp		Eldema	BG02-RCS-AIC-68K	854-68K-22
J1		Connector	12 Pin	Cinch-Jones	S312AB	856-312-S1
J2		Connector	22 Pin 90°	Winchester	8BDJ22S	856-BDJ-S2
L1	4.9 uH	Choke		Miller	5219	851-521-9X
M1		AC Voltmeter	0-150VAC	Jewell	MS1T	857-150-1T
R1,2	33K	Resistor	2W, 5%	Speer	RC42GF33J	804-333-05
R3	.22	Resistor	5W, 10%	Dale	CW5-.22	807-R22-05
R4	10 ohm	Resistor	2W, 5%	Speer	RC42GF100J	804-100-05
R5	22 ohm	Resistor	2W, 5%	Speer	RC42GF220J	804-220-05
R101	10K	Potentiometer			534-9561-10	819-103-53
T1		Transformer		Elgar		990-660-9X
T2 (optional)		Auto Xfmr		Elgar		990-758-9X
		Heatsink Assy. w/TK		Elgar		605-252-4X
		Heatsink Assy. Amp. Bd. Assy.		Elgar		605-253-4X
Chassis Rack-Mount- ing Slides		(Not normally supplied)		Zero	CTN-120	105-120-TN

MODEL 1001C CHASSIS ASSEMBLY

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
B1,2		Fan		Pamotor	4500	853-450-01
BR1		Diode Bridge		ITT	1N4004	845-400-4X
BR2		Bridge		Motorola	MDA3506	847-990-6X
C1,2	1,100 uF	Capacitor	50V	Sprague	39D118G050HP4	824-118-72
C3A,B,C4A,B	2,200 uF	Capacitor	300V	G.E.	86F222M	826-222-92
C5	.05	Capacitor	600V	Sprague	6PS-S50	822-503-06
CB1		Circuit Breaker	25A,250V	Airpax	UPG1-1-6-2-253	852-253-58
DS1		Lamp		Eldema	BG02-RCS-AIC-68K	854-68K-22
J1		Connector	12 Pin	Cinch-Jones	S312AB	856-312-S1
J2		Connector	22 Pin	Winchester	8BDJ22S	856-BDJ-S2
L1	4.9 uH	Choke		Miller	5219	851-521-9X
M1		AC Voltmeter	0-150VAC	Jewell	MS2T	857-150-2T
R1A,B, R2A,B	33K	Resistor	2W, 5%	Speer	RC42GF333J	804-333-05
R3A,B	.22 ohm	Resistor	5W, 1%	Dale	CW5-.22	807-R22-05
R4,5	10 ohm	Resistor	2W, 5%	Speer	RC42GF100J	804-100-05
R101	10K	Potentiometer			534-9561-10	819-103-53
T1		Transformer		Elgar		990-698-9X
T2 (optional)		Auto Xfmr		Elgar		990-762-9X
		H.S. Assy. w/TK		Elgar		607-271-4X
		H.S. Assy.		Elgar		607-270-4X
		Amp. Bd. Assy.		Elgar		605-102-4X

MODELS 251C & 501C AMPLIFIER BOARD ASSY. 605-104-4X

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
C101,111	.05	Capacitor	600V	Sprague IMB	6PS-S50	822-503-06
C102,106	2 uF	Capacitor	200V, 5%		ZA2C205J	822-205-53
C103	20 uF	Capacitor	150V		TE1509	824-206-04
C104,105,109,110	220 pF	Capacitor	500V, 5%	Sangamo	DM15-221J	820-221-05
C107	22 pF	Capacitor	500V, 5%		DM15-220J	820-220-05
C108	2 uF	Capacitor	150V		TE1501	824-205-04
C113	.005	Capacitor	10%	Centralab	DDM502	821-502-00
CR101,102		Zener Diode		Motorola ITT	MZ500-11	843-500-11
CR103-107		Diode			1N4004	845-400-4X
CR108,109		Diode			1N4936	845-493-6X
L101	150 uHv	Choke		Nytronics	SWD150	851-150-01
R102,133	33K	Resistor	2W, 5%	Speer	RC42GF333J	804-333-05
R103	2.7K	Resistor	½W, 5%		RC20GF272J	802-272-05
R104,105,107,108, 124,137	22K	Resistor	2W, 5%		RC42GF223J	804-223-05
R106,121,136	100K	Resistor	½W, 5%	Speer	RC20GF104J	802-104-05
R109,125,138,144	4.7K	Resistor	½W, 5%		RC20GF472J	802-472-05
R114,119,123	470 ohm	Resistor	½W, 5%		RC20GF471J	802-471-05
R115	3.32K	Resistor	1/8W, 1%	Dale	RN60C3321F	813-332-1F
R116,117	47	Resistor	½W, 5%	Speer	RC20GF470J	802-470-05
R118	100 ohm	Potentiometer		Bourns	3059Y-100	819-101-30
R120,122	68K	Resistor	½W, 5%	Speer	RC20GF683J	802-683-05
R126	33 ohm	Resistor	½W, 5%	Speer	RC20GF330J	802-330-05
R132	221K	Resistor	1/8W, 1%	Dale	RN60C2213F	813-221-3F
R134	1.5K	Resistor	½W, 5%	Speer	RC20GF152J	802-152-05
R135	150 ohm	Resistor	½W, 5%	Speer	RC20GF151J	802-151-05
Q101,107,116,117		Transistor		RCA	2N3440	837-344-0X
Q106		Transistor		Fairchild	2N3567	835-356-7X
Q111		Transistor		National	2N3957	842-395-7X
Q112		Diff. Amp.		National	2N3810	849-381-0X
Q113,118,123		Transistor		RCA	2N5416	836-541-6X
Q115		Transistor		Fairchild	2N3638	834-363-8X

MODEL 1001C AMPLIFIER BOARD ASSY. 605-102-4X

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
C101,111	.05	Capacitor	600V	Sprague	6PS-S50	822-503-06
C102,106	2 uF	Capacitor	200V, 5%	IMB	ZA2C205J	822-205-53
C103	20 uF	Capacitor	150V		TE1509	824-206-04
C104,109,110	120 pF	Capacitor	5%		DM15-121J	820-121-05
C105	220 pF	Capacitor	500V, 5%		DM15-221J	820-221-05
C107	22 pF	Capacitor	500V, 5%	Sangamo	DM15-220J	820-220-05
C108	2	Capacitor	150V		TE1501	824-205-04
C113	.005 uF	Capacitor	10%	Centralab	DDM502	821-502-00
CR101,102		Zener Diode		Motorola	MZ500-11	843-500-11
CR103-107		Diode		ITT	1N4004	845-400-4X
CR108,109		Diode		Motorola	1N4936	845-493-6X
L101	150 uHy	Choke		Nytronics	SWD 150	851-150-01
R102,133	33K	Resistor	2W, 5%	Speer	RC42GF333J	804-333-05
R103	2.7K	Resistor	½W, 5%	Speer	RC20GF272J	802-272-05
R104,105,107,108, 124,137	22K	Resistor	2W, 5%	Speer	RC42GF223J	804-223-05
R106,121,136	100K	Resistor	½W, 5%	Speer	RC20GF104J	802-204-05
R109,125,138,144	1K	Resistor	½W, 5%	Speer	RC20GF102J	802-102-05
R114,123	470 ohm	Resistor	½W, 5%	Speer	RC20GF471J	802-471-05
R115	3.32K	Resistor	1/8W, 1%	Dale	RN60C3321F	813-332-1F
R116,117	47 ohm	Resistor	½W, 5%	Speer	RC20GF470J	802-470-05
R118	100 ohm	Potentiometer		Bourns	3059Y-100	819-101-30
R119	220	Resistor	½W, 5%	Speer	RC20GF221J	802-221-05
R120,122	68K	Resistor	½W, 5%	Speer	RC20GF683J	802-683-05
R126	33 ohm	Resistor	½W, 5%	Speer	RC20GF330J	802-330-05
R132	221K	Resistor	1/8W, 1%	Dale	RN60C2213F	813-221-3F
R134	1.5K	Resistor	½W, 5%	Speer	RC20GF152J	802-152-05
R135	150 ohm	Resistor	½W, 5%	Speer	RC20GF151J	802-151-05
Q101,107		Transistor			2N3585	839-358-5X
Q106		Transistor		Fairchild	2N3567	835-356-7X
Q111		Transistor		National	2N3957	842-395-7X
Q112		Diff. Amp.		National	2N3810	849-381-0X
Q115		Transistor		Fairchild	2N3638	834-363-8X
Q116,117		Transistor		RCA	2N3440	837-344-0X
Q118		Transistor			2N6211	842-621-1X

MODEL 251C HEATSINK ASSEMBLIES

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
HEATSINK without TK 620-261-4X						
CR201,401,501 L201,401,501 Q201,202,203, 401,402,403, 501,502,503 R201,401,501 R202,203,402,403, 502,503		Diode Ferrite Bead Transistor		Motorola Fair-Rite RCA	MR2004S 2673000301 2N5240	845-200-4S 850-301-FB 841-524-0X
	5.6 ohm .68 ohm	Resistor Resistor	5W, 5% 5W, 5%	Dale Dale	CW5-.68 CW5-5.6	807-R68-05 807-5R6-05
HEATSINK w/TK 620-262-4X						
CR301 L301 Q301,302,303 R301 R302,303 TK301	5.6 ohm .68 ohm	Diode Ferrite Bead Transistor Resistor Resistor Thermostat	5W, 5% 5W, 5%	Motorola Fair-Rite RCA Dale Dale Elmwood	MR2004S 2673000301 2N5240 CW5-.68 CW5-5.6 3400	845-200-4S 850-301-FB 841-524-0X 807-R68-05 807-5R6-05 861-340-0X

MODEL 501C HEATSINK ASSEMBLIES

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
CR201,401,501 L201,401,501 Q201-204,401-404, 501-504 R201-203,401-403, 501-503 R204,404,504		Diode Ferrite Bead Transistor Resistor Resistor	 5W, 5% 5W, 5%	Motorola Fair-Rite RCA Dale Dale	MR2004S 2673000301 2N5240 CW5-.68 CW5-5.6	845-200-4S 850-301-FB 841-524-0X 807-R68-05 807-5R6-05
HEATSINK ASSEMBLY w/TK NO. 605-252-4X (1)						
CR301 L301 Q301-304 R301-303 R304 TK301		Diode Ferrite Bead Transistor Resistor Resistor Thermostat	 5W, 5% 5W, 5%	Motorola Fair-Rite RCA Dale Dale Elmwood	MR2004S 2673000301 2N5240 CW5-.68 CW5-5.6 3400	845-200-4S 850-301-FB 841-524-0X 807-R68-05 807-5R6-05 861-340-0X

MODEL 1001C HEATSINK ASSEMBLIES

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
HEATSINK without TK 607-270-41						
CR201,401,501		Diode		Motorola	MR2004S	845-200-4S
L210,401,501		Ferrite Bead		Fair-Rite	2673000301	850-301-FB
Q201-208,401-408, 501-508		Transistor		RCA	2N5240	841-524-0X
R201-207,401-407, 501-507	.68 ohm	Resistor	5W, 10%	Dale	CW5-.68	807-R68-05
R208,408,508	5.6 ohm	Resistor	5W, 5%	Dale	CW5-5.6	807-5R6-05
HEATSINK w/TK 607-271-41						
CR301		Diode		Motorola	MR2004S	845-200-4S
L301		Ferrite Bead		Fair-Rite	2673000301	850-301-FB
Q301-308		Transistor		RCA	2N5240	841-524-0X
R301-307	.68 ohm	Resistor	5W, 10%	Dale	CW5-.68	807-R68-05
R308	5.6 ohm	Resistor	5W, 5%	Dale	CW5-5.6	807-5R6-05
TK301		Thermostat		Elmwood	3400	861-340-0X

SECTION VII DIAGRAMS

7-1. INTRODUCTION

7-2. This section contains parts layout and schematic diagrams for the C Series AC Power Sources. The schematics should be used to understand the theory of operation and as an aid during troubleshooting.

7-3. The reference designators shown on the schematics correspond to the reference designators shown in the parts list where exact component specifications are given.

7-4. DIAGRAMS

7-5. The following diagrams are contained in this section:

Fig. 7-1. Model 251C Overall Schematic, Drawing Number 520-119-6X

Fig. 7-2. Model 501C Overall Schematic, Drawing Number 505-007-6X

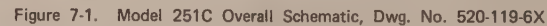
Fig. 7-3. Model 1001C Overall Schematic, Drawing Number 507-009-6X

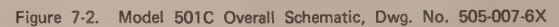
Fig. 7-4. C Series Amplifier Bd. Assemblies, Dwg. No.s 605-104-00, 605-102-00

Fig. 7-5. Model 251C Heatsink Assemblies, w/TK 620-262-4X, w/o 620-261-4X

Fig. 7-6. Model 501C Heatsink Assemblies, w/TK 605-252-4X, w/o 605-253-4X

Fig. 7-7. Model 1001C Heatsink Assemblies w/TK 607-271-4X, w/o 607-270-4X







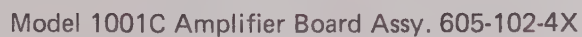
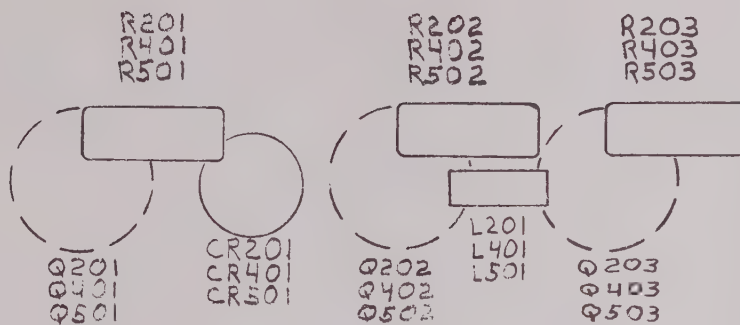
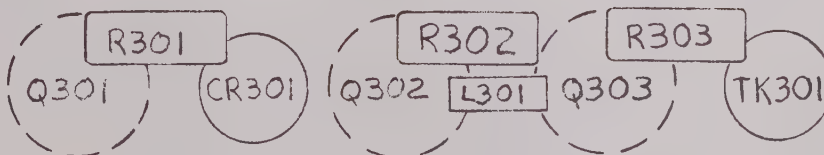


Figure 7-4. C Series Amplifier Board Assembly

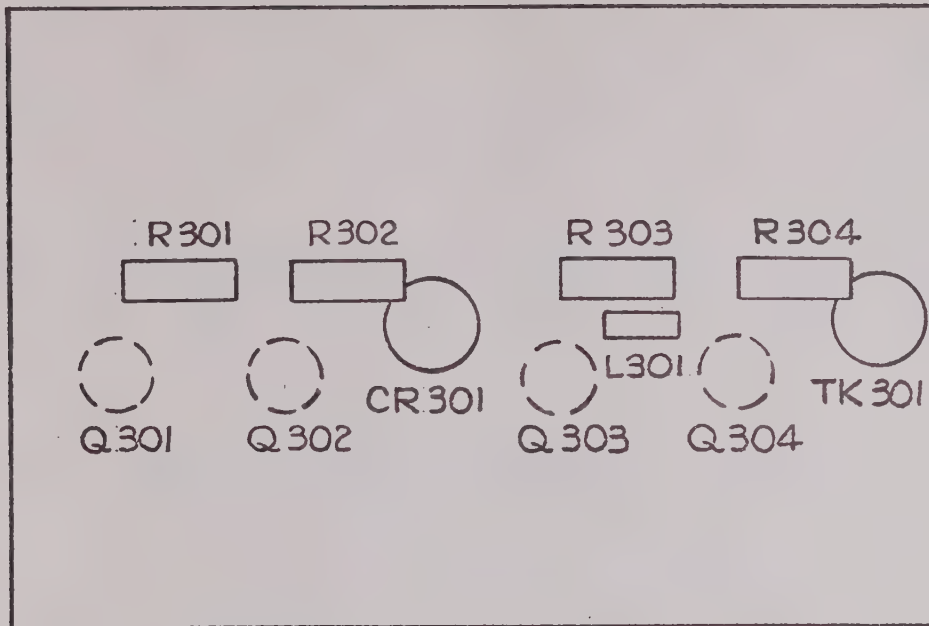


Heatsink Assembly Without Thermostat, No. 620-261-4X

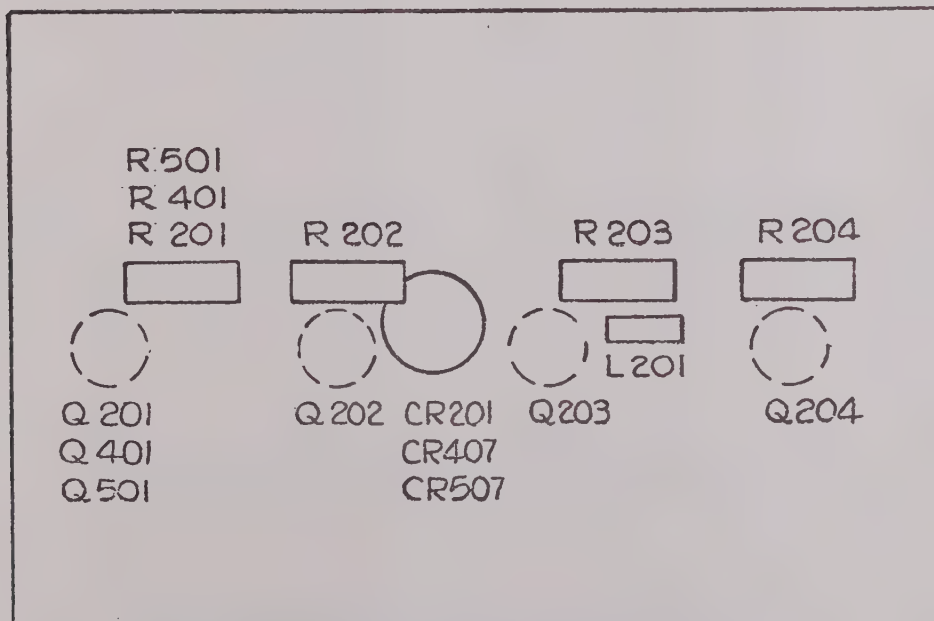


Heatsink Assembly With Thermostat, No. 620-262-4X

Figure 7-5. Model 251C Heatsink Assemblies

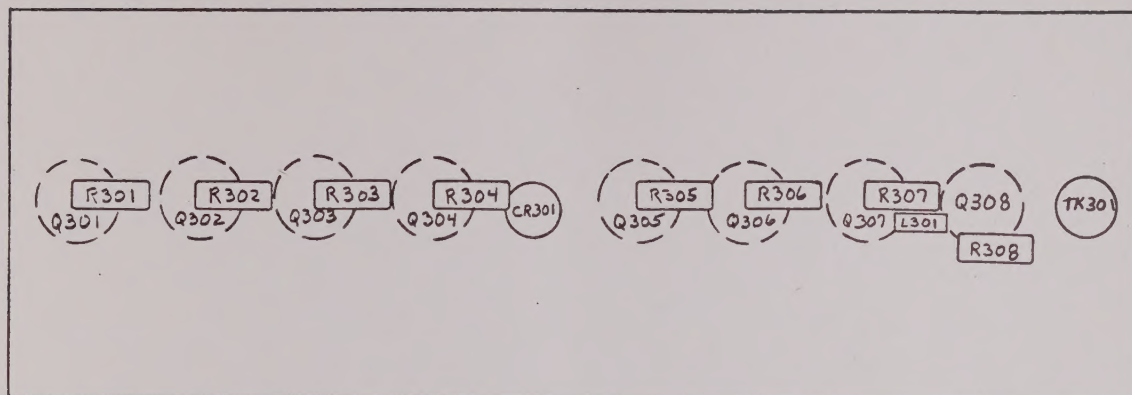


Heatsink Assembly – With Thermostat, No. 605-252-4X

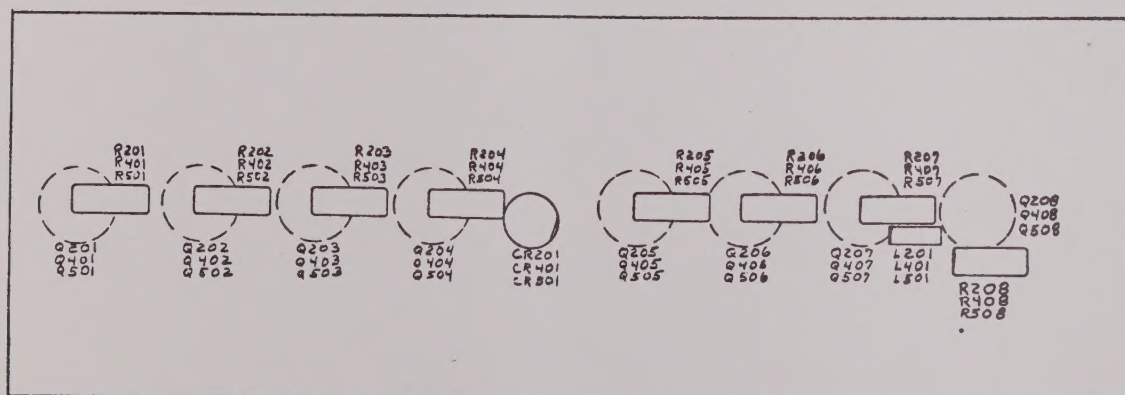


Heatsink Assembly Without Thermostat, No. 605-253-4X

Figure 7-6. Model 501C Heatsink Assemblies



Heatsink Assembly With Thermostat, No. 607-271-4X



Heatsink Assembly Without Thermostat, No. 607-270-4X

Figure 7-7. Model 1001C Heatsink Assemblies

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